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Prevalence and Awareness of the HBsAg Status Among Pregnant Women in the Labour Room of the Ebolowa Regional Hospital

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1. Abstract

1.1. Background: Most cases of chronic hepatitis B virus occur during child birth and early horizontal transmission in Sub-Saharan Africa, our study aimed at determining the level of awareness of the HBsAg status by pregnant women at the delivery room of the Ebolowa Regional Hospital and evaluate the prevalence of HBsAg among them.

1.2. Patients and Methods: It was a cross-sectional study, carried out at the maternity of the Ebolowa Regional Hospital during a period of 10 months. All women who gave an informed consent were consecutively enrolled. Demographic data, past obstetrical history and all relevant preterm screening were extracted from the patient's file and analyzed using the SPSS, CSPro and Excel softwares. The threshold for statistical significance was set at 0.05.

1.3. Results: A total of 334 women were enrolled with a mean age of 26 6.5 years old. Most of them were single, of secondary school level, unemployed and followed up at the regional hospital either by the lone gynaecologist or a state registered nurse. The HBsAg prevalence among those who came with a known status was 8.8%. A hundred and fifty-four (46.1%) did not know their hepatitis B surface antigen (HBsAg) status. The uptake of hepatitis B virus (HBV) screening during antenatal visits was 52.3%. Only the academic level and the category of the health care professional significantly influenced the knowledge of the HBsAg status in the labour room, with p-values of 0.02 and 0.003 respectively.

1.4. Conclusion: The prevalence of HBsAg among pregnant women was 8.8%. Hepatitis B virus is a threat to newborns in Ebolowa. Measures need to be taken to render testing early during pregnancy accessible and affordable if we are to meet the WHO global health sector strategy of eliminating viral hepatitis as a public health threat by 2030.

2. Introduction

Hepatitis B Virus (HBV) is a major cause of cirrhosis, liver cancer and end-stage liver disease [1]. It is highly infectious and is transmitted by exposure to infected blood and body fluids such as semen and vaginal fluid [2]. An estimated 240 million people are infected with

HBV worldwide, and more than 686000 deaths are attributable to chronic HBV complications annually [3,4]. The likelihood of developing chronic HBV is highest if infection occurs at the time of birth and approximately 70 – 90% of children infected perinatally progress to chronic HBV infection [2,5,6].

African countries are disproportionately affected and have the highest endemicity worldwide [7]. It is a leading cause of death for young adults in the region, most of whom are unaware of their infection until disease has progressed to late stages [8,9]. In highly endemic settings, HBV is mainly transmitted perinatally from mother-to-child-transmission (MTCT) at the time of birth and later through horizontal transmission during early childhood [10]. The World Health Organisation (WHO) recommends universal vaccination with a monovalent dose of hepatitis B (HepB) vaccine (HepB-BD) given within 24 hours of birth, followed by at least two subsequent doses [2].

Cameroon is highly endemic for hepatitis B virus, with a national prevalence of 11.5% [11]. The HBV vaccin in Cameroon has been integrated in the expanded program of immunization (EPI) since 2005, but is given as from the 6th week of life. Studies carried out in the country have shown limited knowledge and practices with respect to viral hepatitis both by health care workers and pregnant women [12,13]. The aim of this study was to assess awareness of the hepatitis B surface antigen (HBsAg) status among pregnant women at the time of delivery in the labour room of the Ebolowa Regional Hospital and determine possible factors of an unknown HBsAg status at the time of delivery.

3. Patients and Methods

Ebolowa is the capital city of the South region. It has three public health services (the regional hospital and two integrated health centers), one military hospital, two confessional hospitals and many private health centers most of which are headed by state registered nurses. The lone gynacologists works at the regional hospital.

It was a prospective and cross-sectional study carried out in the labour room of the Ebolowa Regional Hospital. The study spanned a period of 10 months, from January 2017 to October 2017. All women who gave a verbal consent to participate to the study were consecutively enrolled and administered a pre-established data entry form by mide-wives and medical students during their rotations in obstetrics and gynaecology.

The following variables were collected : age, marital status, occupation, academic level, number of pregnancies and birth, number of prenatal consultations, the prenatal work-up requested and done, the health facility where each pregnant woman was followed-up and the health personnel who carried out the prenatal visits. The results of the HBsAg was collected from the files irrespective of the method used (ELISA or rapid test).

Data was analysed using the SPSS, CSPro and Excel softwares. For quantitative variables, means (with standard deviations) and medians (with interquantiles) were calculated. For qualitative variables, proportions were calculated with their confidence intervals. To examine associations between 2 discrete variables both analysis of variance (ANOVA) and Khi-2 tests were conducted with a p-value less than 0.05 considered significant.

4. Results

A total of 334 women gave their verbal consent during sampling and were consecutively enrolled. The mean age was 26 ± 6.5 years old (range : 14 - 45 years). The median of antenatal visits, pregnancies and deliveries were respectively 3 (IQ 1.6 – 6.7), 2 (IQ 1 – 5.25) and 1 (IQ 0 – 3) (Table 1).

Most of them were single (69.6% ; 63.6 – 75.6), of secondary school level (65.7% ; 59.6 – 71.9) and unemployed (70% ; 61 – 79) (Table 2). A hundred and fifty-four (46.1%) did not know their hepatitis B surface antigen (HBsAg) status. A hundred and fifty-seven (48.2%) were followed up at the regional hospital with the gynaecologist and state registered nurses following most of them, that is 212 (64.2%) (Table 2).

The uptake of hepatitis B virus (HBV) screening during antenatal visits, in the total population, came third (52.3%) after that of HIV and syphilis accounting for 92.6% and 62.8% respectively (Table 3). The rate of uptake among those to who it was requested is 74.2%.

Among the women who got screened for HBsAg, a carriage rate of 8.8% (15/180) was observed.

Only the academic level and the health care professional significantly influenced the knowledge of the HBsAg status in the labour room, with p-values of 0.02 and 0.003 respectively (Table 2).

Table 1: Distribution with respect to the obstetrical history

	Min - Max	Mean +- SD	Median ; IQ	p-value
Age (in years)	14 - 45	26 +-6.5	/	0.33
Number of antenatal visits	0 - 8	/	3 ; 1.6 -6.7	
Number of pregnancies	9-Jan	/	2 ; 1 – 5.25	0.08
Number of childbirths	0 - 8	/	1 ; 0 - 3	0.09

Table 2: Characteristics of the population in correlation to the knowledge of the HBsAg status.

		Number (%)	CI (95%)	p-value
Marital status (n=329)				0.685
	Single	229 (69.6)	63.6- 75.6	
	Married	100 (30.4)	21.4 – 39.4	
Academic level (n=324)				0.02
	Non scolarised	8 (2.5)	0,5 - 4,5	
	Primary	36 (11.1)	5 - 17,3	
	Secondary	213 (65.7)	59,6 - 71,9	
	University	67 (20.7)	12,7 - 28,6	
Occupation (n = 330)				0.23
	Unemployed	231 (70)	61 - 79	
	Employed	48 (14.5)	10 - 19,1	
	Self-employed	51 (15.5)	8,4 - 22,5	
Health facility				0.54
	Regional hospital	157 (48.2)	41,7 - 54,6	
	Facility in Ebolowa	119 (36.5)	27,1 - 45,9	
	Facility out of Ebolowa	50 (15.3)	10,7 - 20	
Health professional				0.003
	Gynaecologist	102 (31.5)	22,4 - 40,6	
	General practionner	44 (13.6)	9,1 - 18	
	Reproductive health –nurse	34 (10.5)	6,5 - 14,5	
	State registered nurse	110 (34)	24,7 - 43,2	
	Mide-wife	34 (10.5)	6,5 - 14,5	
HBsAgstatus (n = 334)				
	Positive	15 (4.5)	1,8 - 7,2	
	Negative	165 (49,4)	39,6 - 59,2	
	Unknown	154 (46.1)	39,7 - 52,6	

Table 3: Screening during antenatal visits

	Requested (number, %)	*Done out of the total Population (number, %)*	*Done out of that Requested (%)*
HIV	307 (94.2)	301 (92.6)	98
Diabetes	193 (59.4)	153 (47.1)	79.3
Toxo	179 (55.1)	117 (36)	65.4
Rubella	68 (20.9)	44 (13.5)	64.7
Syphilis	252 (77.5)	204 (62.8)	81
Chlamydia	146 (44.9)	100 (30.8)	68.5
HBV	229 (70.5)	170 (52.3)	74.2
HCV	108 (33.2)	58 (17.8)	53.7

5. Discussion

Hepatitis B viral infection is a serious public health problem worldwide, especially in developing countries due to high infection rates. Cameroon is highly endemic for the infection with a national prevalence of 11.5%[11]. Mother to child transmission (MTCT) and early horizontal transmission stand among the main routes of infection, certainly accounting for the higher rate of cirrhosis and hepatocellular carcinoma related to hepatitis B virus among the youth [14]. We conducted this study to assess the rate of awareness of HBsAg status among pregnant women in the labour room of the Ebolowa Regional Hospital and possible determinants of an unknown status.

Our study revealed a prevalence of 8.8% among pregnant women with a known HBsAg status. Similarly high prevalence rates have been reported by other studies [15-19]. Lack of screening of HBsAg pregnant women exposes the offsprings to this chronic silent infection. Although a positive HBsAg status is not enough to imply mother-to-child transmission, an infected pregnant woman carries a risk of transmitting the virus to her child during delivery. Knowledge of this status helps plan necessary interventions to limit MTCT of the virus.

All African countries have incorporated Hepatitis B vaccine in their Expanded Program of Immunization (EPI). The vaccine is usually given as three doses of the pentavalent vaccine (diphtheria, tetanus, pertussis, Haemophilus influenza type B, and HepB) at 6, 10, and 14 weeks of age [9]. However, given that in highly endemic settings, HBV is mainly transmitted perinatally from mother-to-child at the time of birth, and through horizontal transmission during early childhood [10], WHO recommends universal vaccination with a monovalent dose of hepatitis B (HepB) vaccine (HepB-BD) given within 24 hours of birth, followed by at least two subsequent doses [2]. Given the high carriage rate of HBsAg among pregnant women, introducing a TBD in the EPI will help limit MTCT of HBV.

Moreover, up to 46.1 % of pregnant women did not know their HBsAg status at delivery. This represents the rate of women for who the medical staff has planed no intervention to limit MTCT of HBV in case they were infected. Their children will only receive the HB vaccine following the current EPI schedule.

While the marital status, occupation and health care facility which offered prenatal consultations did not influence the likelihood of arriving the labour room with an unknown HBsAg status, the academic level and the health care provider who attainded antenatal visits were significantly associated with the likelihood of having a known HBsAg status (p- values of 0.02 and 0.003 respectively). Both the gynaecologist and the reproductive health nurse appeared to encourage pregnant women to go for the HBsAg screening. Similarly, the likelihood of having the screening done increased with the academic level of the pregnant women. Health care workers need to be trained on the necessity of screening for HBV during pregnancy as a step towards preventing MTCT of the virus. Available data is in favour of a low level of awareness on viral hepatitis among pregnant women and health care workers in Cameroon [12, 13]. Similar findings have been reported in other African countries [20-23]. In our study the test was requested to only 229 (70.5%) pregnant women by health care workers and was done by 74.2% of them.

When comparing the rate of uptake of HBsAg testing with that of HIV, while 74.2% of pregnant women went for HBV testing, 98% went for HIV testing. It is worthnoting that HIV testing during pregnancy is free of charge while testing for HBV remains costly for the average pregnant woman, ranging from 9US dollars to 17 US dollars depending on the health facility and the type of test used. Seventy per cent of them were unemployed.

6. Conclusion

In a setting where the prevalence of HBsAg is 8.8% among pregnant women, having 46.1% of them delivering with an unknown HBV status is tremendous as it portrays the rate of potential new infections which most often are missed. Measures that will influence the trend of HBV include introducing a TBD in the EPI, training health care workers, especially those involved in prenatal consultations on HBV infection, raise awareness in the general population (through an elaborated program) and rendering screening for HBV free of charge during pregnancy.

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